

Amendments to the Claims

Claim 1 (original): An atomizing nozzle for use in a misting system, said atomizing nozzle comprising:

a nozzle body formed of anodized aluminum, encompassing a fluid chamber, and having a body inlet end and a body outlet end;
a metallic orifice insert affixed to said nozzle body proximate said body outlet end; and
an impeller configured to reside within said fluid chamber.

Claim 2 (original): An atomizing nozzle as claimed in claim 1 wherein said nozzle body comprises:

an insert recess proximate said body outlet end;
a body chamber configured to form at least a portion of said fluid chamber and formed in concatenation with said insert recess; and
a fluid inlet channel proximate said body inlet end and formed in concatenation with said body chamber.

Claim 3 (original): An atomizing nozzle as claimed in claim 1 wherein said orifice insert comprises:

a substantially cylindrical insert body having an insert inlet end and an insert outlet end;

a substantially cylindrical insert chamber substantially coaxially formed within said insert body proximate said insert inlet end;

a substantially conical bevel substantially coaxially formed within said insert body proximate said insert outlet end; and

a substantially cylindrical outlet channel substantially coaxially formed within said insert body between said insert chamber and said insert outlet end.

Claim 4 (original): An atomizing nozzle as claimed in claim 1 wherein said anodized aluminum is a first metal, and wherein said orifice insert is fabricated of a second metal.

Claim 5 (original): An atomizing nozzle as claimed in claim 4 wherein said second metal is stainless steel.

Claim 6 (original): An atomizing nozzle as claimed in claim 1 wherein:

said nozzle body comprises a body chamber;

said orifice insert comprises an insert chamber; and

said fluid chamber is formed of a concatenation of said body chamber and said fluid chamber.

Claim 7 (original): An atomizing nozzle as claimed in claim 1 wherein said fluid chamber comprises:

a substantially cylindrical first chamber having a first chamber length, and having a first chamber diameter; and

a substantially cylindrical second chamber having a second chamber length and having a second chamber diameter greater than or equal to said first chamber diameter.

Claim 8 (original): An atomizing nozzle as claimed in claim 7 wherein said fluid chamber has a fluid chamber length substantially equal to a sum of said first chamber length and said second chamber length.

Claim 9 (original): An atomizing nozzle as claimed in claim 7 wherein:

said nozzle body comprises an inlet channel having an inlet channel diameter;

said orifice insert comprises an outlet channel having an outlet channel diameter; and

said impeller has an impeller diameter and an impeller length, wherein;

said impeller diameter is greater than said inlet channel diameter;

said impeller diameter is greater than said outlet channel diameter;

said impeller diameter is less than said first chamber diameter; and

said impeller length is less than a sum of said first and second chamber lengths.

Claim 10 (currently amended): An atomizing nozzle as claimed in claim 1 wherein said impeller comprises:

- an impeller length;
- an impeller diameter;
- an impeller inlet end;

- an impeller outlet end, wherein said impeller inlet end is closer to said nozzle inlet end than said nozzle outlet end when said ~~non-metallic~~ impeller resides within said fluid chamber;

- a planar surface at said impeller outlet end, wherein said planar surface is substantially circular, has a surface circumference, and has a surface diameter less than said impeller diameter; and

- a plurality of grooves at said impeller outlet end, where each of said grooves has an outer edge substantially tangential to said surface circumference.

Claim 11 (original): A method of manufacturing an atomizing nozzle for use in a misting system, said method comprising:

- constructing an anodized aluminum nozzle body encompassing a first chamber;

- fabricating a metallic orifice insert encompassing a second chamber;

- producing an impeller;

- inserting said impeller into said first chamber; and

- affixing said orifice insert into said nozzle body.

Claim 12 (original): A method as claimed in claim 11 wherein said constructing activity comprises:

forming an insert recess within said nozzle body, wherein said insert recess is substantially cylindrical and has a recess diameter;

forming said first chamber first within said nozzle body, wherein said first chamber is substantially cylindrical and has a first-chamber diameter less than said recess diameter;

forming an inlet channel within said nozzle body, wherein said inlet channel is substantially cylindrical and has an inlet-channel diameter less than said first-chamber diameter, and wherein said first chamber and said inlet channel are contiguous and substantially coaxial; and

anodizing said nozzle body.

Claim 13 (currently amended): A method as claimed in claim 12 wherein said ~~non-metallic~~ impeller has an impeller diameter less than said first-chamber diameter and greater than said inlet-channel diameter.

Claim 14 (original): A method as claimed in claim 12 wherein said constructing activity additionally comprises forming threads upon said nozzle body.

Claim 15 (original): A method as claimed in claim 11 wherein:

said constructing activity comprises forming an insert recess within said nozzle body; and

said affixing activity affixes said metallic orifice insert within said insert recess.

Claim 16 (original): A method as claimed in claim 11 wherein said affixing activity affixes said orifice insert to said nozzle body by one of crimping and riveting.

Claim 17 (original): A method as claimed in claim 11 wherein said fabricating activity comprises:

- forming an insert body for said metallic orifice insert;
- forming said second chamber as substantially a right cylinder within said insert body; and

- forming an outlet channel within said insert body, wherein said outlet channel extends between said second chamber and an outside of said insert body.

Claim 18 (original): A method as claimed in claim 11 wherein said producing activity comprises:

- forming said impeller as substantially a cylinder having an impeller diameter;

- forming a raised planar surface at a first end of said impeller, wherein said raised planar surface is substantially circular, has a surface circumference, and has a surface diameter less than said impeller diameter; and

- forming a plurality of grooves at said first end of said impeller, wherein each of said grooves has an outer edge substantially tangential to said surface circumference.

Claim 19 (original): A method as claimed in claim 11 wherein:

- said constructing activity constructs said nozzle body of aluminum; and

- said fabricating activity fabricates said metallic orifice insert of stainless steel.

AMENDMENT

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Claim 20 (original): An atomizing nozzle for use in a misting system, said atomizing nozzle comprising:

an anodized aluminum nozzle body having an inlet end, having an outlet end, having an insert recess proximate said outlet end, and encompassing a first portion of a fluid chamber;

a stainless steel orifice insert affixed to said nozzle body within said insert recess and encompassing a second portion of said fluid chamber; and

an impeller configured to reside within said fluid chamber.